

Solutions to
improve your
bottom line



Industrial Energy Strategy & the Role of Audits

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- Discussion Points
 - Energy Strategy
 - Role of Audits
 - Case Studies

- Energy Strategy?

- Successful companies develop and **implement** a business strategy which includes a marketing strategy, a financial strategy, an operating plan, a maintenance strategy, etc.,etc,etc.....but few have an energy strategy!
- One of the most proactive steps that a manufacturer can take to control energy costs now & in the future is to develop an Energy Strategy



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ENERGYSC
SOUTH CAROLINA'S ENERGY RESOURCE

- OK So what is a Strategy?

– The simplest definition is

*A plan of action designed to
achieve a specific goal*

- An Energy Strategy addresses many things including
 - Supply
 - Utilization
 - Cost
 - Alternatives
 - Contract Issues
 - Response to change
 - Risk

- Steps in an Energy Strategy

STEP 1: Make Commitment

STEP 2: Assess Performance (Audit)

STEP 3: Set Goals

STEP 4: Create Action Plan

STEP 5: Implement Action Plan

STEP 6: Evaluate Progress

STEP 7: Recognize Achievements

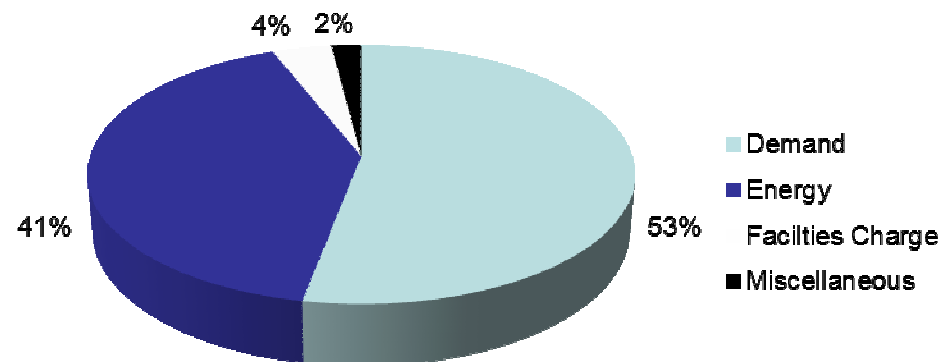
- Role of Audit
 - Methodical examination & review
 - Identify what, where & how much
 - Compare the “as found” condition
 - To a “new & clean” condition
 - To new/replacement technology and/or procedures
 - Use results to prioritize maintenance, refine operations or evaluate something different

- Audit process
 - Review bills
 - Create graphs
 - Develop understanding of where energy is used, how it is priced & what are cost trends
 - Interview operations & maintenance personnel
 - Develop equipment lists & operating parameters
 - Create an energy balance

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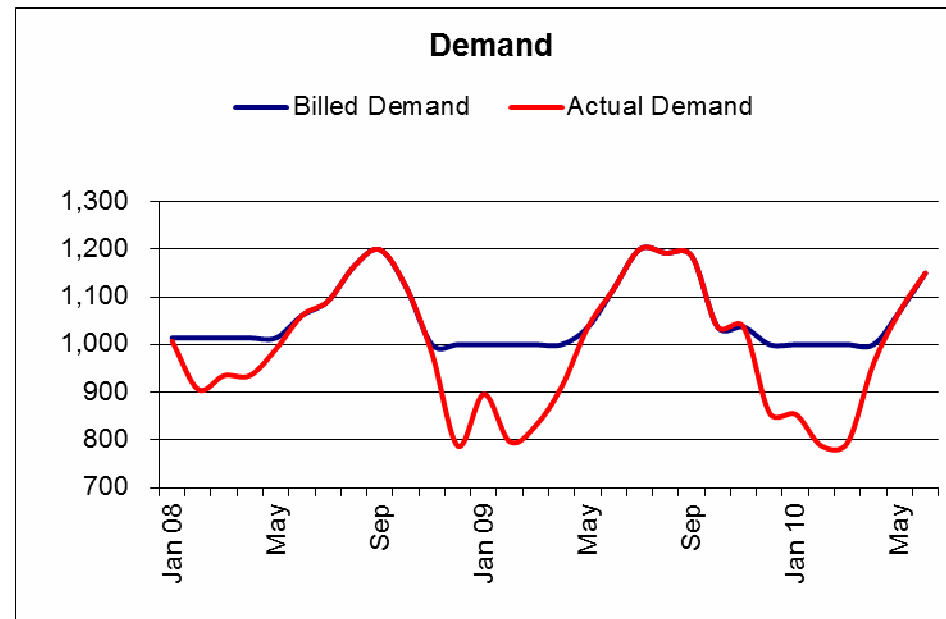
• Billing Components



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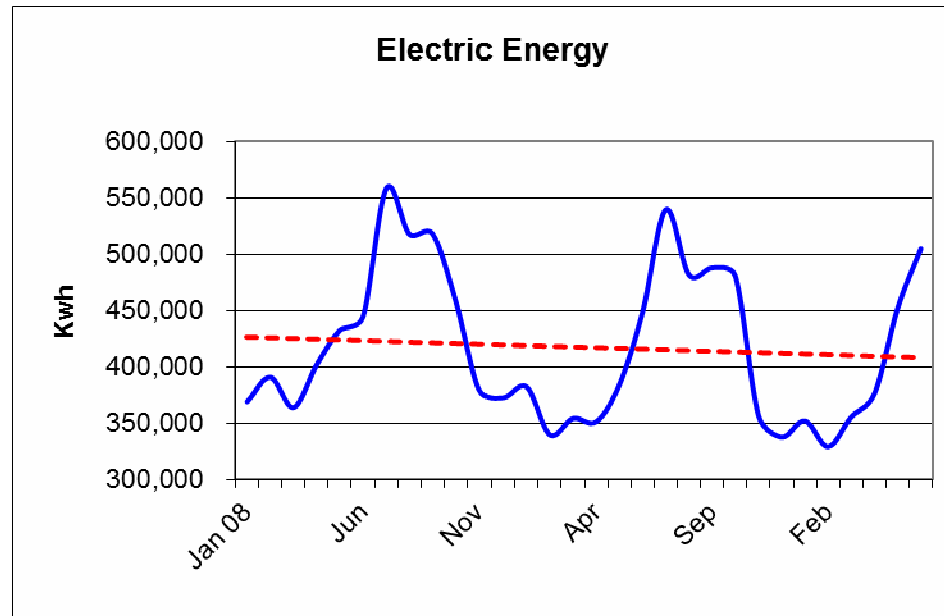
- Demand Graph



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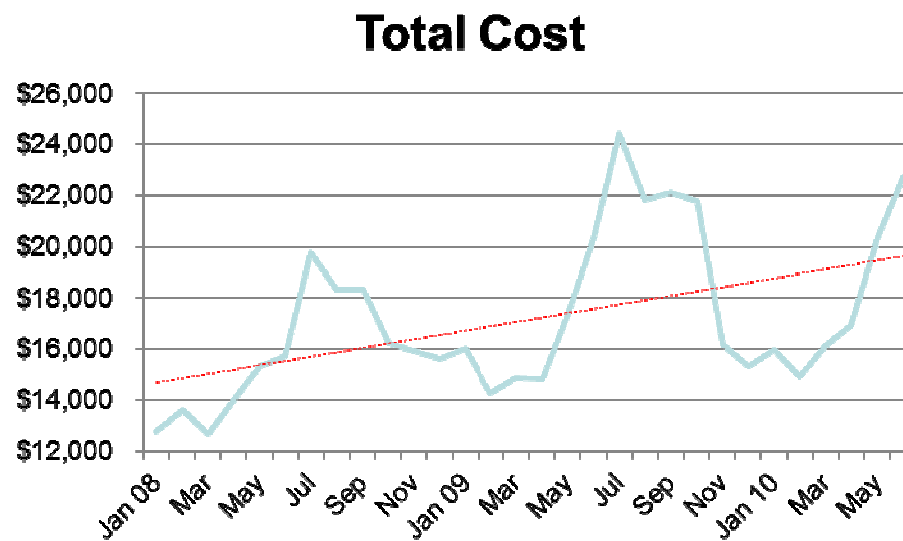
- Energy Graph



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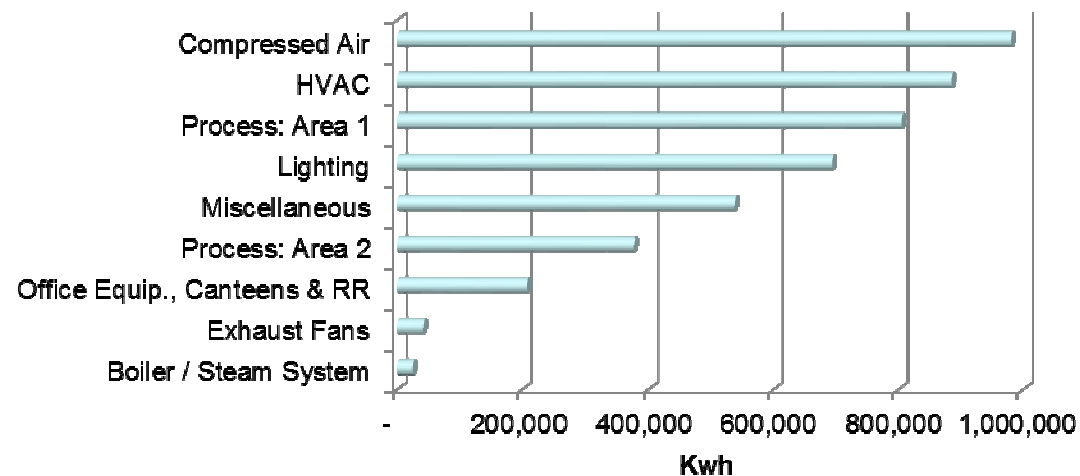


- Cost Graph



- Energy balance

Electric Energy Consumption by Area/Process



• Case Study - Compressed Air

- Annual electric expenditure - \$900K
- Estimated compressed air cost - \$270
- 2 @ 300 Hp (base loaded), 3 @ 200 HP (standby)
- Conducted leak survey & repaired grade 1 leaks
- Reworked piping to eliminate bottlenecks
- Reduced discharge pressure from 110 PSIG to 100 PSIG
- Relocated one compressor, dryer & receiver closer to demand
- Eliminated several inappropriate uses
- Now operate with two 200 Hp compressors
- Estimated annual savings - \$90,000

• Case Study - Lighting

- Annual electric expenditure - \$1.7 Million
- Estimated lighting cost - \$400K
- Conducted lighting survey
- Phase 1: Replaced 323 metal halide fixtures with new fluorescent fixtures using T8 lamps, electronic ballasts & occupancy sensors in some locations
- Project cost - \$74,800
- Estimated annual savings - \$82,400
- Payback – 11 months (7 months w/EPAct credit)

- Case Study – Steam
 - Plant in central SC
 - Annual gas cost - \$1.0 Million
 - 81% was for boiler fuel
 - Replaced insulation on steam piping & dearator, implemented trap maintenance program, used waste heat to preheat combustion air, used boiler blowdown to preheat boiler feedwater makeup
 - Estimated annual savings - \$150,000

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Questions!